START

Meeting Minutes Transmittal/Approval

February 12, 1990

Unit Managers Meeting: General Topics

450 Hills Street, Room 47

January 24, 1990

From/
Appvl. _____ Date: 2/14/90
John J. Broderick, Unit Manager, DOE-RL

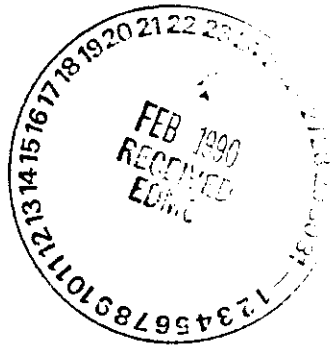
Appvl.: _____ Date: _____
Paul T. Day, Unit Manager, EPA

Appvl.: _____ Date Feb 14, 1990
Larry Goldstein, Unit Manager, Washington Department of Ecology

To: Distribution

The purpose of this meeting was to discuss general topics which are common to all operable units.

Meeting Minutes are attached. Minutes are comprised of the following:
- Attachment #1 - Meeting Summary/Summary of Commitments and Agreements;
- Attachment #2 - Agenda for the meeting;
- Attachment #3 - Attendance List;
- Attachment #4 - Action Items Status List;
- Attachment #5 - Handouts from Procedures/Lessons Learned
- Attachment #6 - Revised Integrated Schedule
- Attachment #7 - Technology Development at PNL
- Attachment #8 - Status of Performance Assessment
- Attachment #9 - Status of Background Development
- Attachment #10 - Status of HEIS



Distribution:
Doug Sherwood, EPA
Dave Einan, EPA
R.D. Wojtasek, WHC
Ward Staubitz, USGS
Chuck Cline, WDOE
Mike Thompson, DOE-RL
Bob Stewart, DOE-RL
Paul Pak, DOE-RL
Donna Lacombe, PRC

cc:
R.D. Freeberg, DOE-RL
R.D. Izatt, DOE-RL
R.E. Gerton, DOE-RL
S.H. Wisness, DOE-RL
D.L. Clark, DOE-RL
J.D. Goodenough, DOE-RL

ADMINISTRATIVE RECORD (1100-EM-1, 300-FF-1, 300-FF-5, 200-BP-1, 100-HR-1, 100-HR-3)[Care of Susan Wray, WHC]
(Distribution Continued on Page 2)

Distribution (continued):

Jerry Chiaramonte, SWEC/IT
Dave Myers, SWEC/IT
Holly Jo Harrison, SWEC/IT
Jim Patterson, WHC
Tom Wintczak, WHC
Jack Waite, WHC
Wayne Johnson, WHC
Alan Krug, WHC
Merl Lauterbach, WHC
Larry Hulstrom WHC
Steve Weiss, WHC
Fred Roeck, WHC
Steve Clark, WHC
Robert Henckel, WHC
David Jones, WHC
Jeff Ayres, WHC
Bruce Ford, WHC
Jerry Cammann, WHC
Ron Smith, PNL
George Last, PNL
Don Kane, EMO
Bill Wright, Golder

Attachment #1
Meeting Summary and Summary of Commitments and Agreements
General Topics Unit Managers Meeting
450 Hills St., Room 47
January 24, 1990

Meeting Summary/Summary of Commitments and Agreements

1. Bob Stewart made a presentation on the status of procedure development and standardization for RI/FS activities on the Hanford Site. Handouts covering this discussion are found in Attachment 5.

2. Bob Stewart presented the current status of the "Lessons Learned" document as presented to the regulatory agencies on January 8, 1990. Handouts covering this discussion are found in Attachment 5.

Action # GT.17: **EPA/Ecology to provide comments on "Lessons Learned Document" by January 31, 1990. Action: C.S. Cline, D.R. Sherwood**

Action # GT.18: **WHC will develop a small team for the purpose of developing a Hanford-specific guidance document. The committee is to include members from EPA/Ecology, SWEC/IT, and PNL/EMO as well as WHC. Action: Tom Wintczak**

3. Tom Wintczak presented the most current FY-90 and FY-91 schedules that reflect up-to-date budgets. A number of factors that affect scheduling were discussed. Integration of efforts under individual Operable Units is a major factor affecting overall schedules. Written responses to EPA/Ecology paper on integration are due to Ecology by January 26, 1990. Another major factor that may greatly affect proposed schedules is the handling of "hot spots" found during the 300-FF-1 investigation. These areas of moderately elevated radiation exposure may result in redefining the priority of subsequent operable units. Integration of RI/FS work with the requirements of the National Environmental Policy Act may result in additional changes to the presented schedule. The schedule, as presented, is included as Attachment 6.

Action # GT.19: **A presentation will be made at the February Unit Managers Meeting discussing the potential impacts of the NEPA process on Environmental Restoration activities. Action DOE/WHC, R.K. Stewart has lead.**

4. Terri Stewart, PNL lead a presentation by PNL researchers on various technologies being addressed for possible use within many RI/FS and RFI/CMS Operable Units. Attachment 7 contains the viewgraphs used in this presentation.

5. Brian Sprouse presented the current status of the Administrative Record File. There has been no official response on the Candidate Record File since this subject was last presented to the Unit Managers.

Action # GT.20: **EDMC will provide the Unit Managers with the listing of records currently in the Administrative Record (AR Index) and with the monthly Candidate File lists for the last six months. Action: Brian Sprouse.**

Action # GT.21: **At the individual Operable Unit Managers Meetings discussions will be held to ascertain which of the Candidate Records will be included in the Administrative Record. Action to be taken at the February meetings by all Unit Managers.**

Action # GT.22: **EDMC will delete the "I.D." codes from the Candidate Record listing. Candidate Record listings will be provided to the individual Unit Managers on a monthly basis. Action: Brian Sprouse**

6. Jerry Cammann, WHC presented a discussion on the current status of effort and funding for Performance Assessment and Risk Assessment activities associated with individual Operable Units and the overall Hanford Site. Viewgraphs presented in support of this presentation are found in Attachment 8. WHC is preparing a risk assessment implementation plan for 200-BP-1, due to DOE on February 1.

7. Jim Hoover, WHC presented an update of the status of site wide groundwater and soils background determinations. Viewgraphs from this presentation are found in Attachment 9.

Action # GT.23: **A strategy document for assessing background chemistries for soils and groundwater will be available for review by March 26, 1990. Action: Jim Hoover**

8. Bob Henckle, WHC provided an update on the implementation of the Hanford Environmental Information System (HEIS). Viewgraphs used are presented in Attachment 10.

9. The dates for the next Unit Managers Meetings will be February 14 and 15, 1990.

Attachment #2
Meeting Agenda
General Topics Unit Managers Meeting
January 24, 1990

Status of Procedure Development - Bob Stewart/DOE
A discussion and status of a Hanford Site-wide approach to uniform operating procedures currently being developed for RI/FS activities.

Work Plan Standardization - Bob Stewart/DOE
Status of Lessons Learned Report

Overall Schedules - Tom Wintczak/WHC
Presentation of the ongoing Operable Units integrated schedules for FY-90 and 91, reflecting the current budget scenario.

Issues for February Managers Meeting - Tom Wintczak/WHC
A discussion of major issues to be elevated to DOE-RL, EPA Region X, and Ecology managers for the upcoming February meeting.

Technology Development/ISV Status - Terri Stewart/PNL

Soil Washing/Bioremediation - Terri Stewart/PNL
Presentation on proposed near-term soils remediation pilot demonstration.

Administrative Record Checklist - Brian Sprouse/WHC
EDMC will provide an updated Administrative Candidate Review list and discus actions taken to streamline the review process.

Performance Assessment FY-90 Status - Jerry Cammann/WHC
Current FY-90 work scope and update on site-wide approach.

Soils/Groundwater Background Baseline Update - Jim Hoover/WHC
Update on the strategies for a site-wide soils and groundwater background baseline approach.

HEIS Update - Bob Henckel/WHC
Discussion on the current status of HEIS procedures, data entry, validation and user access.

Action Items - Wayne Johnson/Merl Lauterbach/WHC

Agreements and Commitments

Attachment #3
Attendance List
General Topics Unit Managers Meeting
January 24, 1990

Name	Organization	Phone
Dave Einan	EPA	509-376-3883
Chuck Cline	WDOE	206-438-7556
John Broderick	DOE-RL	509-376-4197
Bob Stewart*	DOE-RL	509-376-6192
Mike Thompson	DOE-RL	509-376-6421
David Myers	SWEC/IT	509-376-0969
Jim Patterson	WHC	509-376-0568
Tom Wintczak*	WHC	509-376-0902
Wayne Johnson	WHC	509-376-1721
Alan Krug	WHC	509-376-5634
Merl Lauterbach	WHC	509-376-5257
Larry Hulstrom	WHC	509-376-4034
Fred Roeck	WHC	509-376-8819
Robert Henckel	WHC	509-376-2091
Don Kane	Battelle EMO	509-375-2333
Bill Wright	Golder	206-883-0777
Donna Lacombe	PRC	206-624-2692
Doug Sherwood	EPA	509-376-9529
Ron Smith*	PNL	509-376-5831
Jerry Cammann*	WHC	509-376-8506
Jim Rasmussen	DOE-RL	509-376-2247
George Last	PNL	509-376-8527
S.J. Kowall*	Battelle EMO	509-375-2283
Jerry Chiaramonte	SWEC/IT	509-376-7829
David Jones	WHC	509-376-8557
Roger Pressentin	DOE-RL	509-376-5983
Frank Calapristi*	WHC	509-376-0568
Rich Carlson	WHC	509-376-9027
Travis Young	Ecology	206-438-7695
Ed Baker*	PNL	509-375-2026
Tom Brouns*	PNL	509-376-7855
Sydney Koegler*	PNL	509-376-0492
Terri Stewart*	PNL	509-375-2298
Phillip Pohl*	PNL	509-375-2432
Jim Hartley*	Battelle EMO	509-376-4927
Brian Sprouse*	WHC	509-376-2530
Joann See*	WHC	509-376-0820
Roy Gephart*	PNL	509-376-2781
Paula Cowley*	PNL	509-376-2282
J.D. Hoover*	WHC	509-376-2668
Ed Thornton*	WHC	509-376-6470
Bill Green*	WHC	509-376-3886
R.A. Hildebrand*	DOE-RL	509-376-7287
L.C. Brown*	WHC	509-376-2579
R.P. Henckel*	WHC	509-376-2091

* = Presenter or Part-time Participant

Attachment #4

Action Items Status List

General Topics Meeting

December 13, 1989

Item No.	Action	Status
ST1.4	EPA and Ecology requested notification prior to initiation of the Becker drilling and containment system test. K.M. Thompson will notify.	Open Test has not started.
ST1.6	EPA and Ecology requested that they be supplied with the report documenting the results of the Becker drilling and containment system test. W.H. Price (WHC) will supply a copy of the report for EPA and Ecology's on-site review. After clearance, copies of the report will be provided.	Open Test has not started.
ST2.1	Bob Stewart will coordinate the preparation of a letter from DOE requiring the contractors to clear documents supporting the Tri-Party Agreement.	Open Paul Pak, DOE has been assigned the task of coordinating an effort to address the clearance issue site-wide.
ST2.2	WHC (Rick Wojtasek) is to evaluate the possibility of generating Hanford site-wide quality requirements for environmental restoration activities.	Open Item continued, status updated based on presentation by Bob Stewart at 1/24/90 meeting.
ST2.5	EPA (Mike Schlender) will inform DOE (C.K. Kasch) of course availability in DQOs.	Closed This item was covered in DOE/EPA Quality Assurance Meetings.

ST4.1	WHC will revise the quality strategy document (for RI/FS data) to incorporate EPA's stated QA requirements. The strategy document will be issued as a Miscellaneous Report (MR) until a permanent status is decided. Action: Wayne Johnson, WHC	Closed Strategy published as a Miscellaneous Report (MR), delivered at 1/24/90 meeting.
GT.2	WHC is to provide a date to EPA/Ecology for issuance of the strategy document which describes methodologies and data use. Action: Carol Geier, WHC	Closed Document delivered at 1/24/90 meeting.
GT.5	WHC will provide the updated review checklist to unit managers for their respective areas of responsibility by the 5th day of each month. Action: Brian Sprouse, WHC	Closed See Action Items GT.20, GT.21 and GT.22
GT.6	The EDMC will investigate whether a sort of the review checklist can be made to facilitate easier record statusing by the unit managers. Status of this capability will be reported at the January UM meeting. Action: Brian Sprouse.	Closed Meeting to be held in February to close out past items, new items will be handled on a regular basis. All parties will name to the A.R. file papers that should be entered.
GT.8	WHC is to provide a detailed backup to EPA and Ecology for the areas proposed for program reductions by January, 1990. Action: Tom Wintczak	Closed Elevated to Project Manager Level for resolution.
GT.9	EPA/Ecology will review the information provided on the proposed approach to biota surveys and provide comments by the next UM meeting in December.	Closed To be addressed under integration. WHC will publish strategy document to provide additional guidance to contractors.

GT.11	WHC will finalize and issue the data quality strategy document without further changes. Action: Wayne Johnson	Closed
GT.12	A progress report on the status of the Becker Drilling program will be provided at the January Unit Managers Meeting. Action: K.R. Fecht	Closed
GT.13	A progress report on the status of the background programs for soil and groundwater will be presented at the January Unit Managers Meeting. Action: K.R. Fecht.	Closed Presentation presented at 1/24/90 Unit Managers Meeting.
GT.14	EPA/Ecology wish to be involved in oversight of performance assessment activities. This function is currently scheduled for funding through the RDDT&E program from DOE-HQ. John Broderick will assess the ramifications of the proposed involvement of EPA/Ecology and report at the January Unit Managers Meeting.	Closed WHC will prepare a monthly presentation on the status of performance assessment activities to be presented at the General Topics sessions.
GT.15	EPA/Ecology requested information on current year funding/programs/activities relating to site performance assessment activities supporting Operable Unit risk assessments. The information is to be presented at the January Unit Managers Meeting. Action: Jerry Cammann	Closed Presented at the 1/24/90 General Topics meeting.
GT.16	WHC is to provide lists of available data through December 31, 1990 at the January Unit Managers Meeting. Subsequent delivery of data availability lists will be provided to cover periods through the last day of the preceding month. Data will be provided by Waste Unit within each Operable Unit. Action: Tom Wintczak	Closed Data will provided at individual Operable Unit Managers meetings as part of the standard agenda items.

Attachment 5

Status - RI/FS Work Plan Preparation Guidance and RI/FS Procedures

RI/FS Work Plan Preparation Guidance

- Draft RI/FS Work Plan Preparation "lessons-learned" document transmitted to EPA/Ecology on January 8, 1990, completing action item # GT1.7.

- After EPA/Ecology comments are received, "lessons-learned" document will be revised and issued to be used in work plan preparation, pending completion of a "Work Plan Preparation Guidance Document".

- On January 22, WHC was requested to establish a task team to prepare a Work Plan Preparation Guidance Document. This team will include PNL/EMO, SWEC/IT, and others as appropriate, including EPA/Ecology. Schedule for this effort is TBD.

RI/FS Procedures

- Actions on preparation of a "DOE Requirements/Procedures Manual" have been put on hold pending resolution of the type document it is to be.

- Development of the DOE document has been placed "off-line" such that the WHC Environmental Information Instruction (EII) Manual will continue to be used and upgraded until the DOE Manual is issued.

- Following is a tabulation of EII status:
  New EIIs:
  - EII 1.9, Work Plan Review and
    EII 11.2, Geophysical Work - Effective January 19

  - EII 5.8, Groundwater Sampling
  - EII 5.10, Sample Identification & Data Entry in HEIS Database
  - EII 5.11, Sample Packaging and Shipping and
  - EII 6.10, Abandoning/Decommissioning Groundwater Wells are currently in the final review/approval stage.

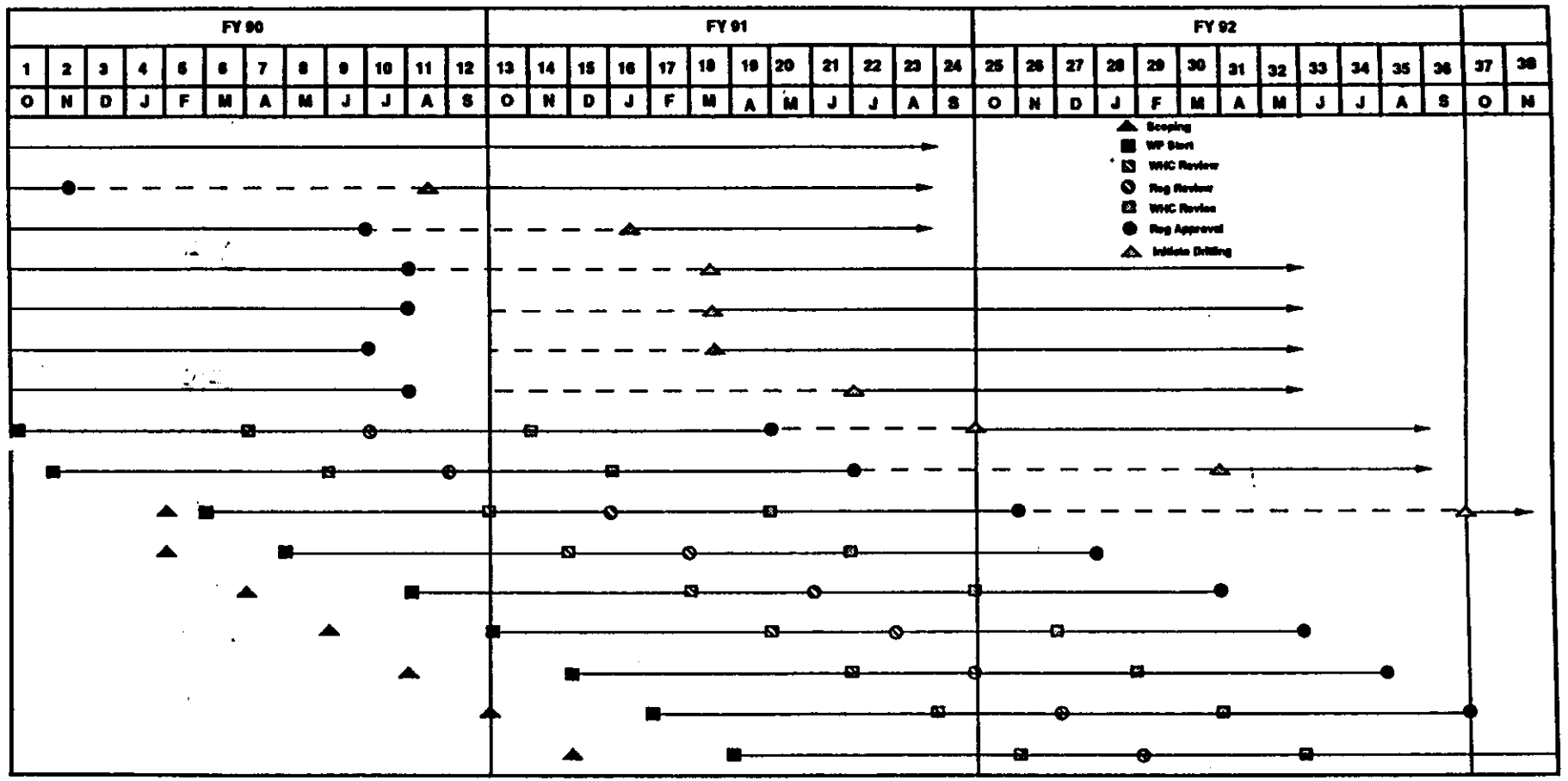
Work In Progress:

- The 10 EIIs with EPA comments to be incorporated are on schedule for revision.

- The current plans for the EII manual include a systematic review and revision to incorporate "lessons Learned" (i.e. DOE-RL Audit-89-11), references to supporting/interfacing WHC documents, and replacement of Section 3.0, Definitions, with a Glossary for the manual to promote consistency in terms and titles.

Attachment #6

ER Program Past Practices Activities



Note: These schedules are based on the funding level submitted in the FY 1992 Five Year Plan and assumes funding at the current baseline (1/21/92) for FY 92.

Attachment #7

DEMONSTRATION OF ENVIRONMENTAL RESTORATION TECHNOLOGY AT HANFORD

Presented by

TL Stewart, SS Koegler, and PI Pohl

January Unit Managers Meeting

Richland, WA

PURPOSE

DESCRIBE THE REMEDIATION TECHNOLOGIES CURRENTLY PLANNED FOR DEMONSTRATION AT HANFORD

TOPICS

DESCRIPTION OF ER TECHNOLOGY DEVELOPMENT PROGRAM

DISCUSSION OF THREE SPECIFIC DEMONSTRATION PROJECTS

BENEFIT

GAIN DATA ON

- COST
- PERFORMANCE
- OPERABILITY
- POSSIBLE IMPROVEMENTS

ENSURE AVAILABILITY OF TECHNOLOGIES FOR SITE REMEDIATION

CURRENT PROGRAM

SITE CHARACTERIZATION TECHNOLOGY

PERFORMANCE AND RISK ASSESSMENT

REMEDIATION TECHNOLOGY

- **SOIL/GROUNDWATER TREATMENT**
- **IN SITU STABILIZATION AND ISOLATION**
- **PROTECTIVE BARRIERS**

OBJECTIVE

DEMONSTRATE REMEDIATION TECHNOLOGIES AT HANFORD

-THREE CURRENT PROJECTS

- TWO FUTURE PROJECTS

PURPOSE OF DEMONSTRATIONS

SUPPORT RI/FS PROCESS BY:

* **FACILITATING TECHNOLOGY TRANSFER**
  - **INCLUDE INNOVATIVE TECHNOLOGY IN WORKPLANS**
  - **ENSURE COLLECTION OF PERTINENT DATA DURING RI**
  - **STREAMLINE TREATABILITY TESTING**
  - **PROVIDE DATA AND INFORMATION FOR FS PROCESS**
  - **GAIN ACCEPTANCE OF TECHNOLOGY**

* **FACILITATING TECHNOLOGY DEVELOPMENT PLANNING**
  - **PROVIDE TECHNOLOGY BASELINE**
  - **EVALUATE RDDT&E INVESTMENTS**

APPROACH

IDENTIFY TECHNOLOGY WITH BROAD APPLICABILITY

SELECT SITE FOR DEMONSTRATION

WORK WITH DOE-RL, OEC, AND REGULATORS

- OBTAIN AGREEMENT ON SITE SELECTION
- DEVELOP SCHEDULES AND WORKPLANS
- INTEGRATE WITH ONGOIN RI WORK
- SECURE WORKPLAN APPROVALS AND PERMITS
- EVALUATE RESULTS
- TRANSFER TECHNOLOGY

BENEFIT

GAIN DATA ON

- COST
- PERFORMANCE
- OPERABILITY
- POSSIBLE IMPROVEMENTS

ENSURE AVAILABILITY OF TECHNOLOGIES FOR SITE REMEDIATION

INTERFACE REQUIREMENTS

GENERAL

UPDATE UNIT AND PROJECT MANAGERS ON INNOVATIVE TECHNOLOGIES SUPPORTING PLANNING AND EXECUTION OF RI/FS

SPECIFIC

WORK WITH SPECIFIC UNIT AND PROJECT MANAGERS TO RESOLVE TECHNICAL OR SCHEDULE ISSUES ASSOCIATED WITH WORK PLAN DEVELOPMENT AND APPROVAL (AS NEEDED) ON INDIVIDUAL PROJECTS

REMEDIATION TECHNOLOGY DEMONSTRATIONS

116-B-6A CRIB ISV DEMONSTRATION - SS KOEGLER

U1/U2 GROUNDWATER BIOLOGICAL TREATMENT DEMONSTRATION - TM BROUNS

SOIL WASHING "SITE" DEMONSTRATION - PI POHL

ISV DEMONSTRATION - STATUS

SCHEDULE - INITIATED IN FY 1988; COMPLETE IN FY 1991

PURPOSE - DEMONSTRATE USE OF ISV ON MIXED WASTE

CURRENT STATUS - WORKPLAN IN APPROVAL CYCLE
- EQUIPMENT PREPARATION IN FIELD ONGOING
- TEST WILL BE CONDUCTED IN LATE FEBRUARY

INTERFACE - CHARACTERIZATION/MONITORING REQUIRMENTS
- WORKPLAN APPROVAL

U1/U2 GROUNDWATER TREATMENT - STATUS

SCHEDULE - INITIATED IN FY 1988; COMPLETE FY 1991

PURPOSE - DEMONSTRATE USE OF FACULTATIVE ANAEROBES FOR DESTROYING NITRATES AND CCl_4 IN GROUNDWATER

CURRENT STATUS - PILOT PLANT CONSTRUCTED

- SIMULATED STREAMS TESTED IN FY 1989
- U1/U2 GROUNDWATER TESTS CONDUCTED IN FY 1990 AND 1991

INTERFACE - IMPLEMENTATION OF TSD PART A INTERIM PERMIT ON BIOLOGICAL TREATMENT IN 324 BUILDING

SOIL WASHING SITE DEMONSTRATION - STATUS

SCHEDULE - INITIATED FY 1990; ESTIMATED COMPLETION FY 1993

PURPOSE - DEMONSTRATE EPA SOIL WASHING ON RMW
- EVALUATE INNOVATIVE SOLVENTS AND NOVEL EQUIPMENT FOR USE AT DOE SITES (R&D SUPPORT)

CURRENT STATUS - NEGOTIATING WITH EPA FOR EQUIPMENT
- ESTABLISHING TREATABILITY TEST CAPABILITY

INTERFACE - INITIATING NOW

FUTURE ER DEMONSTRATION

SITE CHARACTERIZATION TECHNOLOGY

- **IN SITU SENSOR AND CALIBRATION SYSTEM FOR WATER TABLE LEVEL MEASUREMENTS**

REMEDIATION TECHNOLOGY

- **IN SITU BIOREMEDIATION**

SUMMARY

ER TECHNOLOGY DEMONSTRATIONS ARE A PART OF THE OVERALL DEVELOPMENT PROGRAM

DEMONSTRATIONS SUPPORT RI/FS PROCESS BY FACILITATING TECHNOLOGY TRANSFER AND RDDT&E PLANNING

CURRENTLY HAVE THREE PROJECTS UNDERWAY THAT REQUIRE INTERFACE WITH UNIT MANAGERS

116-B-6A CRIB IN SITU VITRIFICATION DEMONSTRATION PROJECT

Pacific Northwest Laboratory

Project Manager: Syd Koegler

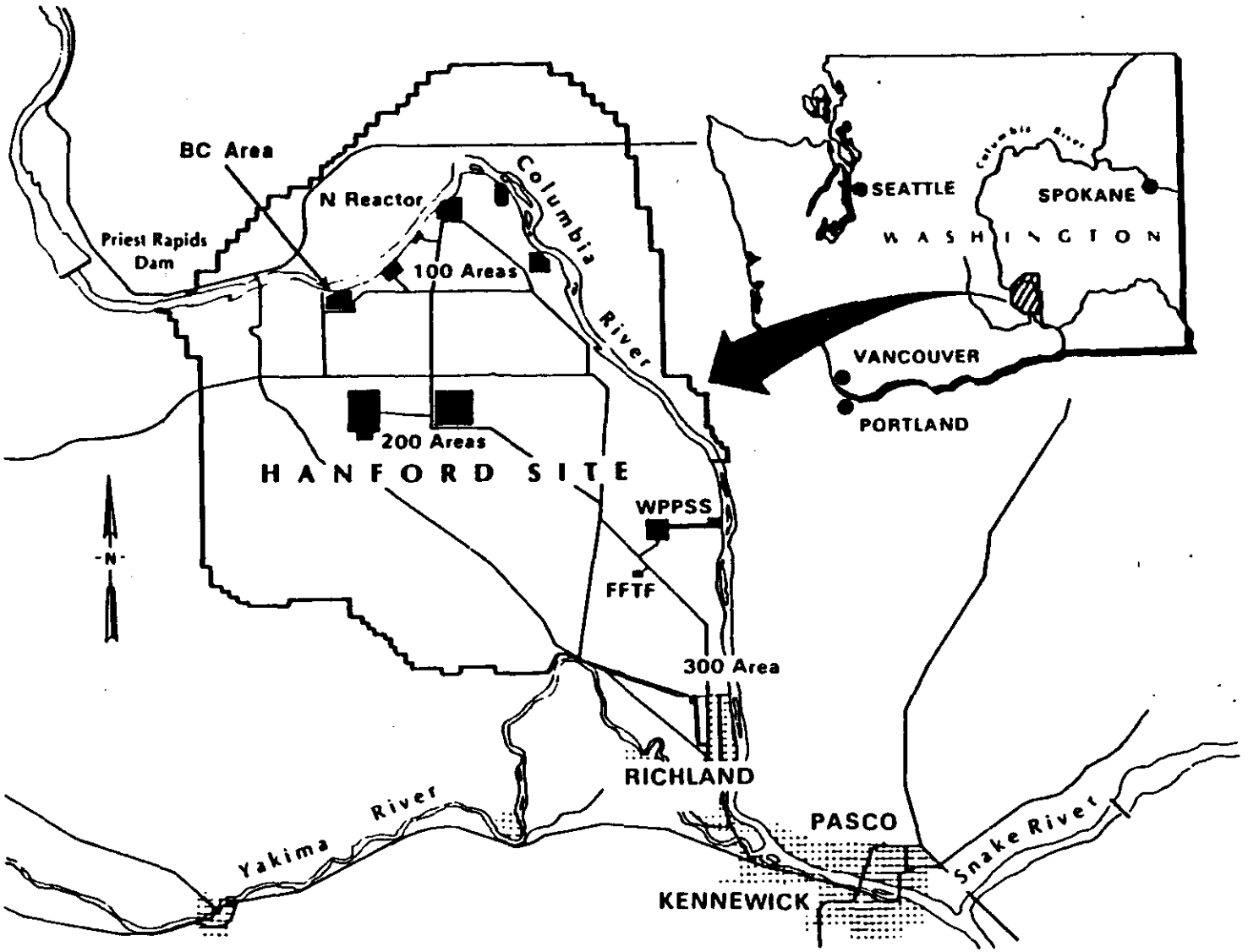
January Unit Manager's Meeting

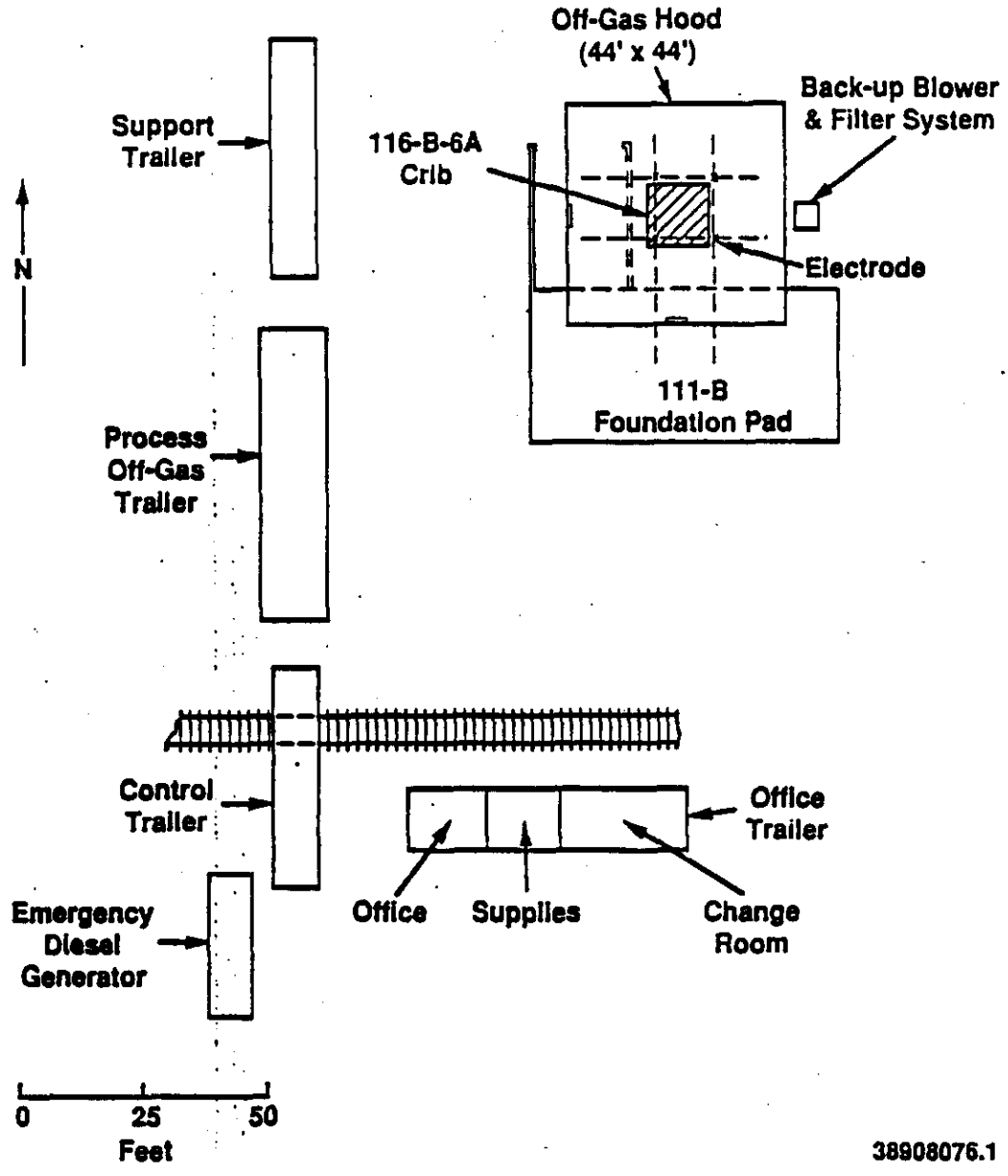
PROJECT OBJECTIVES

- Demonstrate in situ vitrification of mixed fission products and hazardous wastes
- Demonstrate enhanced vitrification depth ($\geq$20 ft)
- Verify off gas system performance for vitrification of an actual wooden crib

BACKGROUND

- 116-B-6A Crib Site Description
- ISV Process Description
- ISV Equipment Description


BC Area
N Reactor
Priest Rapids Dam
100 Areas
Columbia River
200 Areas
HANFORD SITE
WPPSS
FFTF
300 Area
RICHLAND
PASCO
KENNEWICK
Yakima River
Snake River
N
SEATTLE
SPOKANE
WASHINGTON
VANCOUVER
PORTLAND


Off-Gas Hood
(44' x 44')
Back-up Blower
& Filter System
Support
Trailer
116-B-6A
Crib
N
Electrode
111-B
Foundation Pad
Process
Off-Gas
Trailer
Control
Trailer
Office
Trailer
Office
Supplies
Change
Room
Emergency
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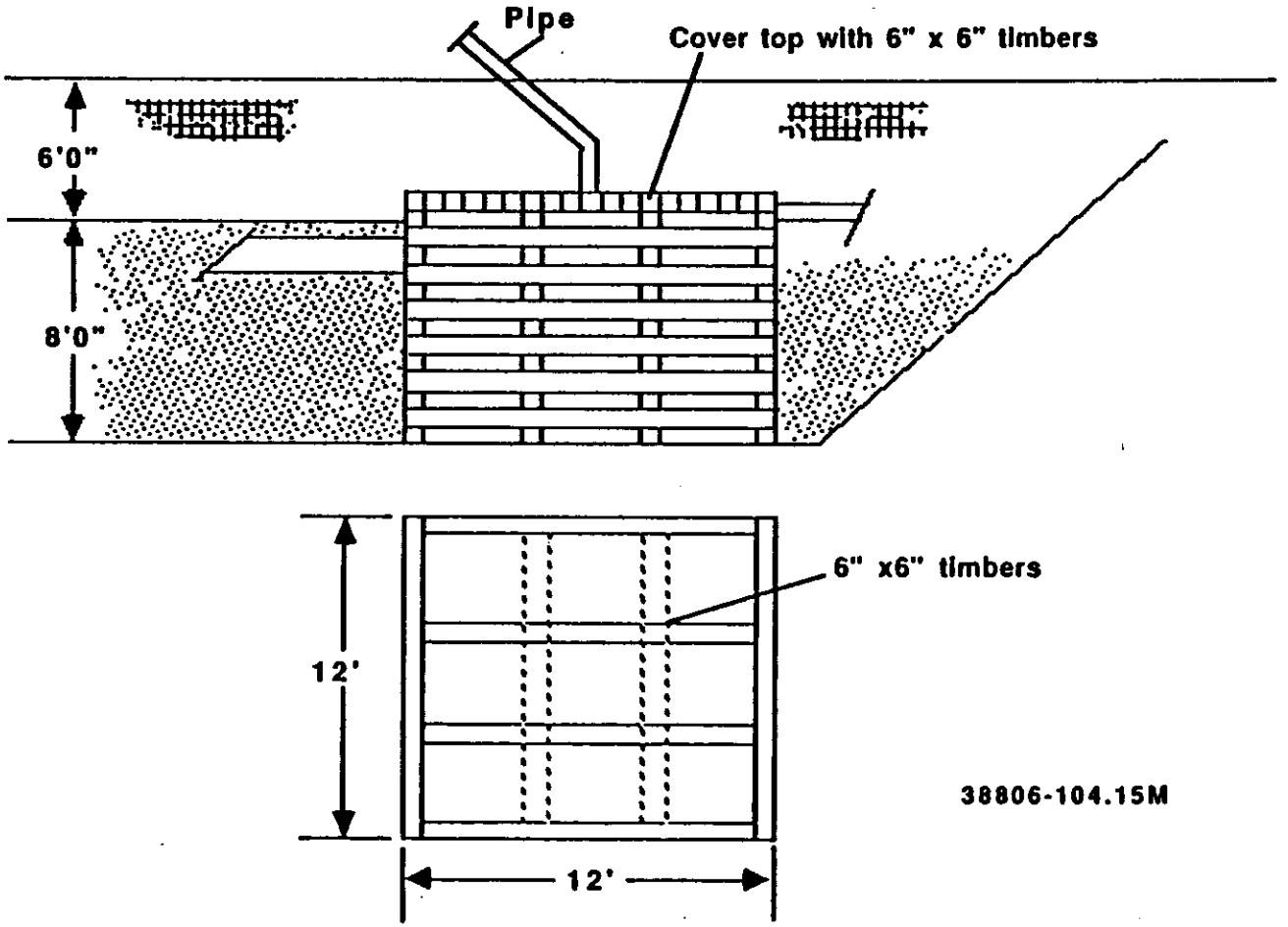
116-B-6-1 Crib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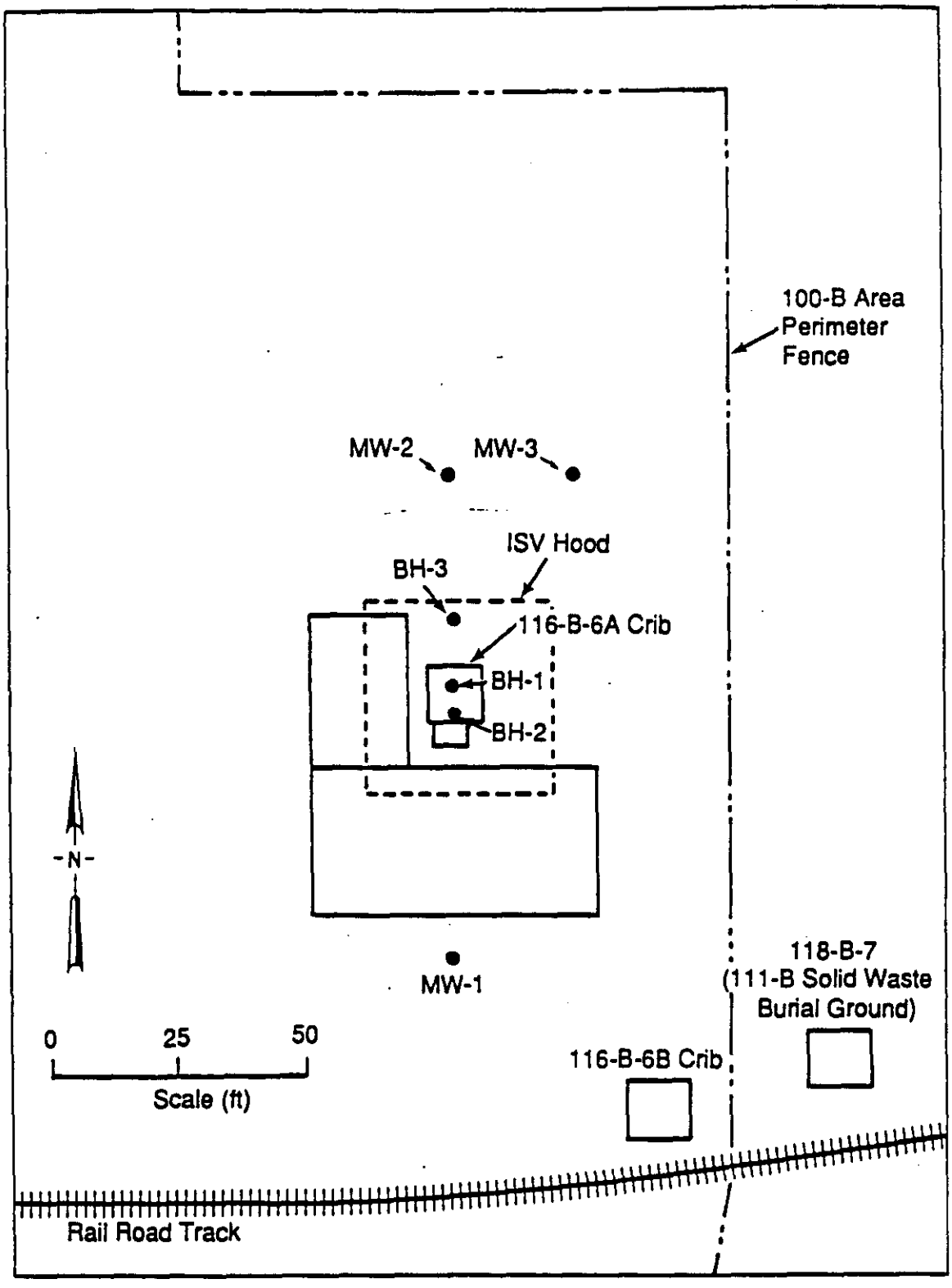
8'0"
6" x6" timbers
12'
12'
38806-104.15M


100-B Area
Perimeter
Fence
MW-2
MW-3
ISV Hood
BH-3
116-B-6A Crib
BH-1
BH-2
N
MW-1
118-B-7
(111-B Solid Waste
Burial Ground)
0
25
50
Scale (ft)
116-B-6B Crib
Rail Road Track

APPROACH

- Characterize site and verify ISV technology (FY-1989)
- Large-scale ISV demonstration test (FY-1990)
- Evaluate product and process results (FY-1991)

STATUS

Tasks Completed:

- Site characterization completed
- Groundwater wells installed
- Engineering-scale test completed to test frit injection & vitrification of wood components
- Equipment moved to site and set up, utilities installed
- Work Plan & other documents prepared

SCHEDULE

FY 1990 Activities:

- Complete operations staff training
- Documentation approval
- Perform test

FY 1991 Activities:

- Cool block 9-12 months
- Core drill, sample block & soil
- Evaluate test, write final report

U1/U2 GROUNDWATER BIOLOGICAL TREATMENT DEMONSTRATION

Pacific Northwest Laboratory

Project Manager: Thomas M. Brouns

January Unit Managers Meeting

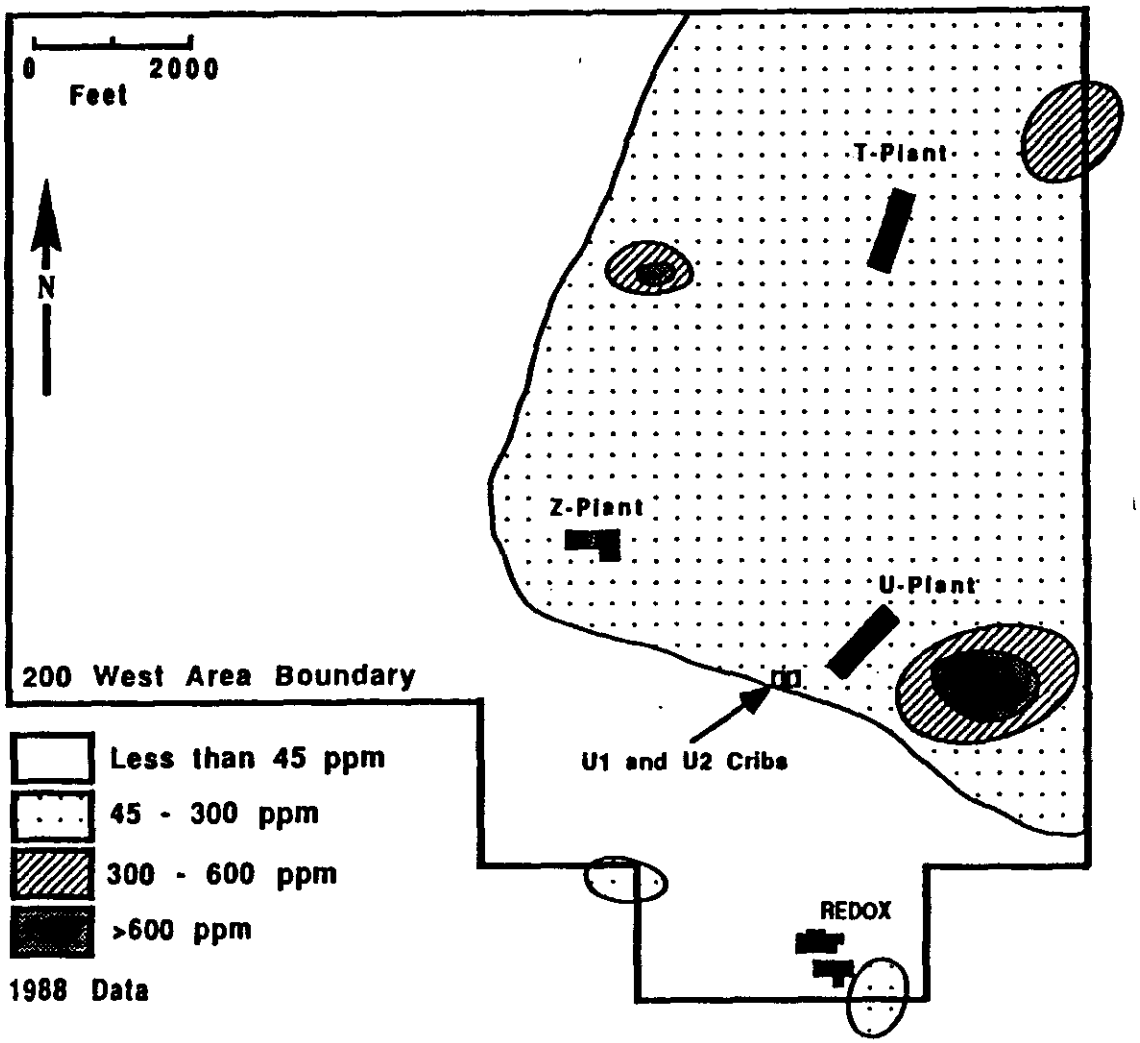
OBJECTIVES

- Develop effective biological process for the destruction of nitrates and organics in aqueous streams
- Demonstrate simultaneous destruction of nitrates and organics in Hanford groundwater
- Transfer technology to the DOE operating contractor and other DOE sites

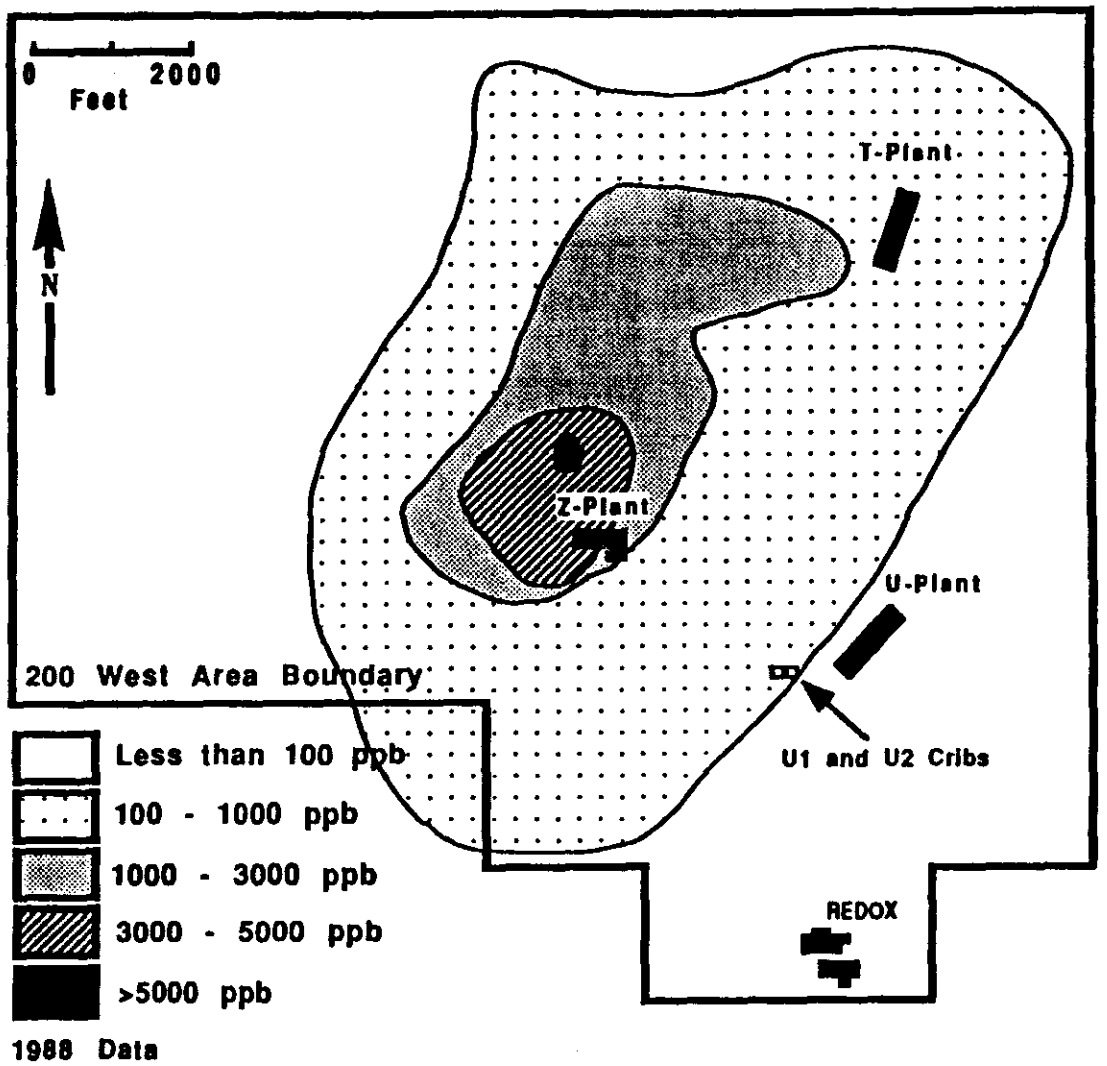
BACKGROUND

- Facultative anaerobic microorganisms degrade NO_3^- to N_2
- Carbon tetrachloride co-metabolized to CO_2
- Organisms supplied acetate as primary carbon source
- Organisms are native soil bacteria

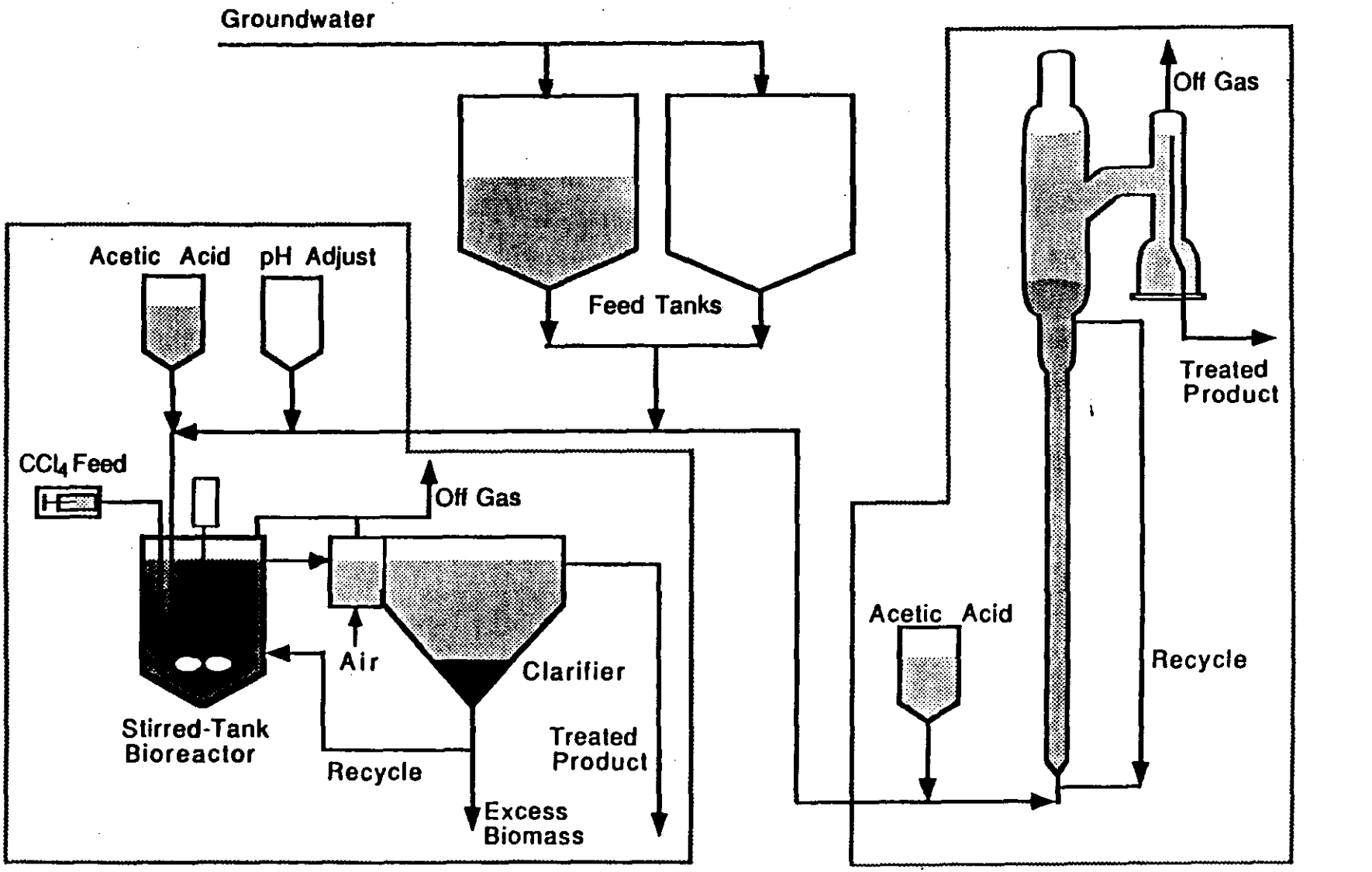
General NO_3^- Distribution in Groundwater 200 West Area, Hanford Site Washington



General CCl_4 Distribution in Groundwater 200 West Area, Hanford Site Washington



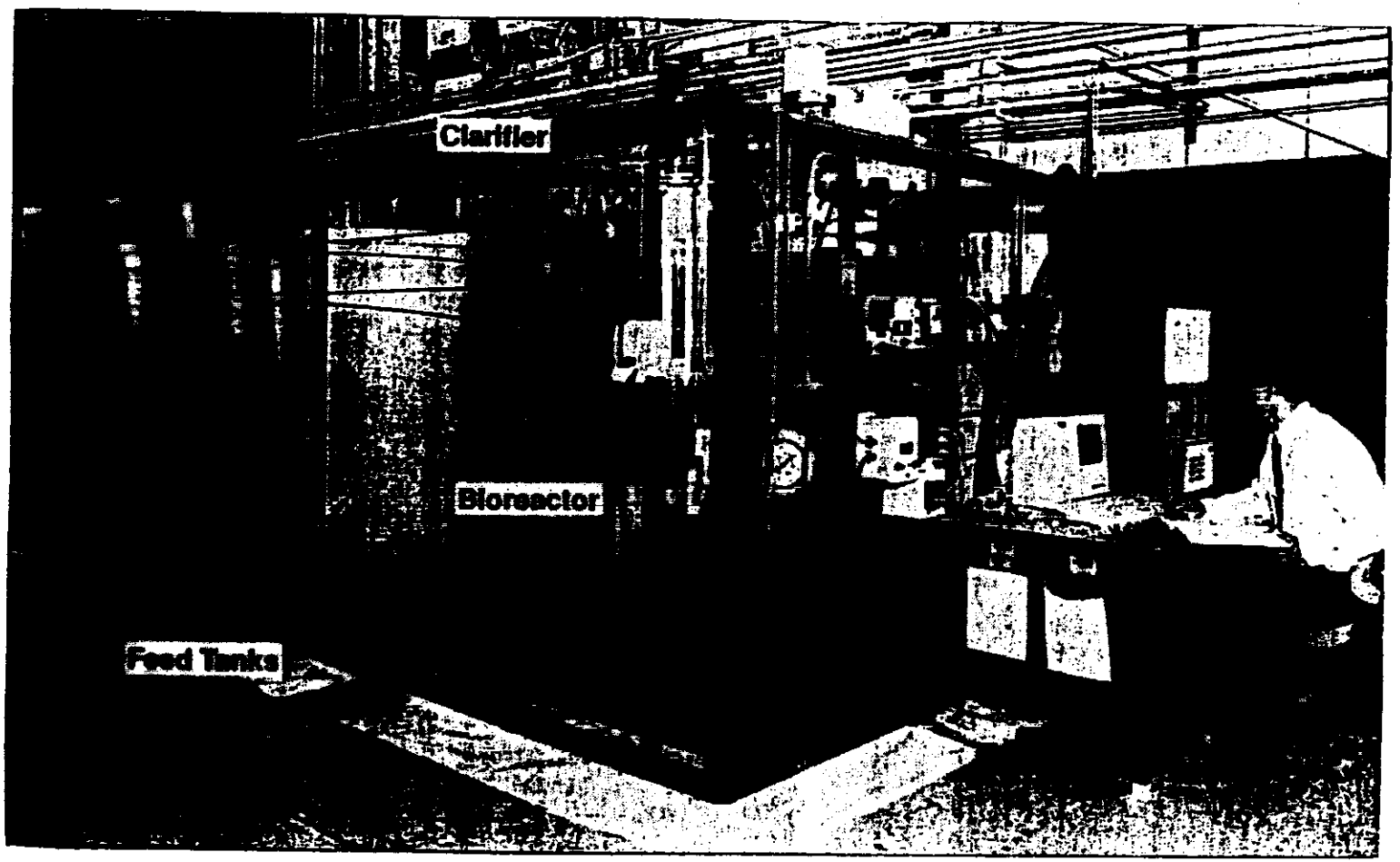
Schematic of the Pilot-Scale Biological Treatment System



Stirred-Tank Bioreactor System

Fluidized-Bed Bioreactor System

Biological Treatment System for the Degradation of Nitrates and Organics



Fluidized-Bed Bioreactor

APPROACH

- Determine degradation kinetics
- Design & construct pilot-scale treatment system
- Evaluate treatment system effectiveness using simulated groundwater
- Demonstrate treatment of nitrate and carbon tetrachloride in Hanford groundwa

STATUS

- Completed pilot-scale testing with simulated groundwater in FY 1989
- Preparing compliance notebook for activation of the Part A TSD Permit
- Demonstration with U1/U2 groundwater scheduled for FY 1990 and FY 1991

SCHEDULE

FY 1990

- Permit activation, process modifications to enhance operability
- Pilot-scale demonstration with U1/U2 groundwater

FY 1991

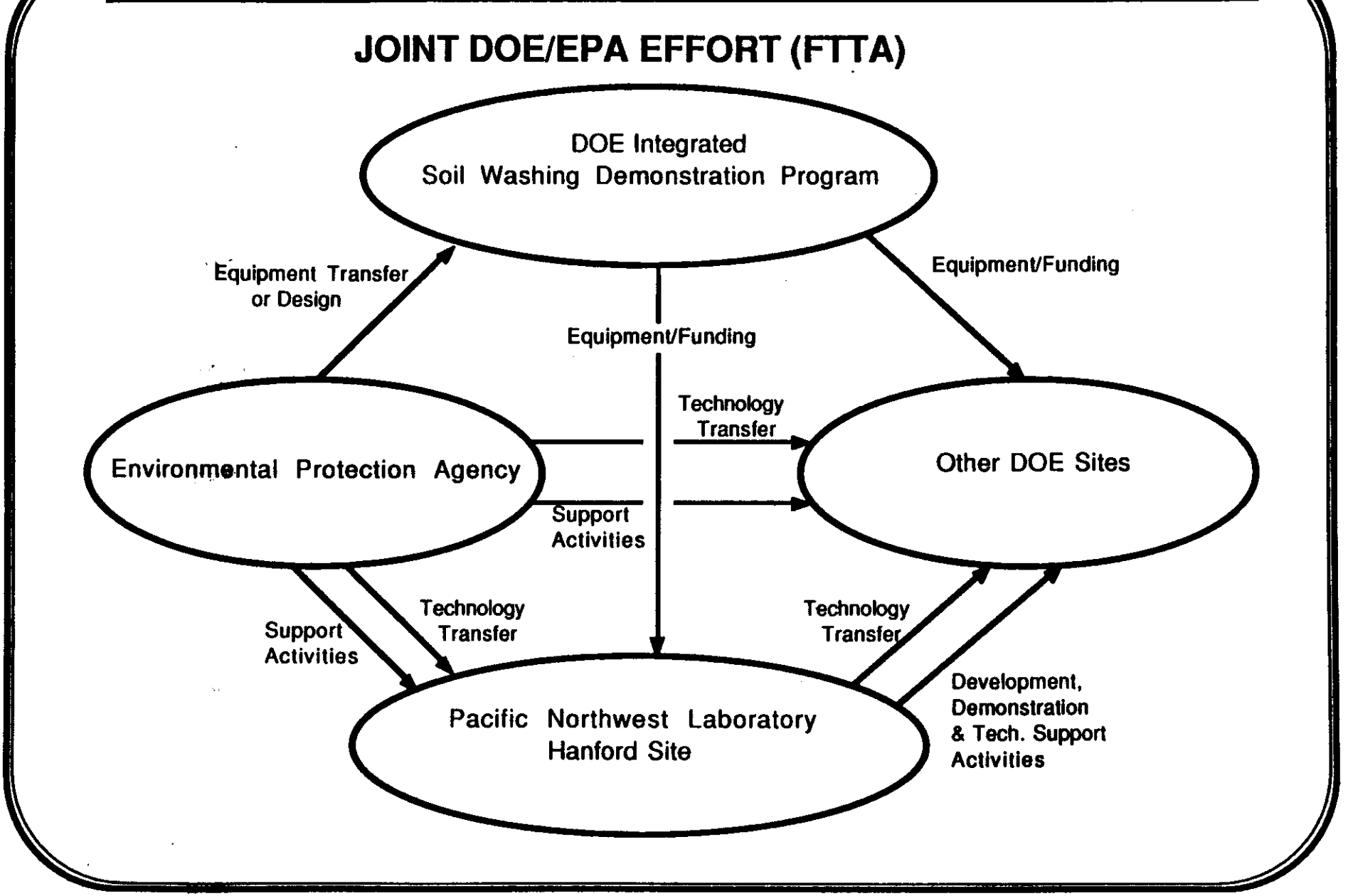
- Complete pilot-scale demonstration
- Data analysis and reporting

Soil Washing SITE Demonstration

BACKGROUND

- For use on contaminated soils with small fraction of fines (<100μm)
  - Coarse material is clean
  - Fine fraction is contaminated
- Used comercially in Europe
- Demonstrated (10/89) in Minnesota under EPA's SITE program - 500 lb/hr
- Current EPA demo underway in NJ waste site (Ra226 and Th230)

Soil Washing Site Demonstration



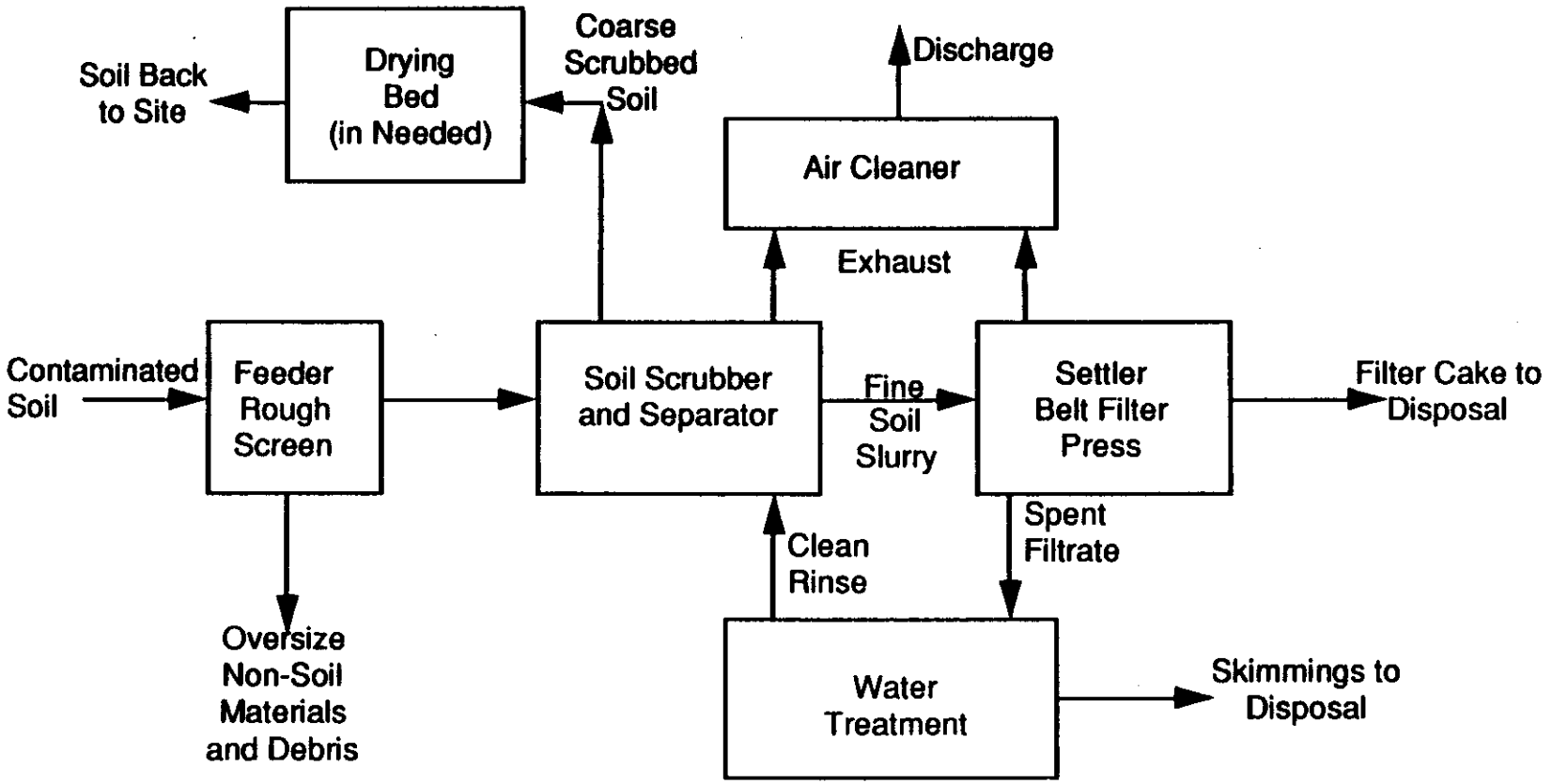
Soil Washing SITE Demonstration

APPROACH & STATUS

- Receive funding/approval - Pending
- Conduct bench-scale tests - archive pond samples
- Obtain Mini-Soils Washer - Negotiations underway
- Develop integrated process strategy
- Develop Treatability Test Work Plan & supporting documentation in conjunction with RI/FS
- Conduct demonstration

Soil Washing SITE Demonstration

EPA MINI-WASHER PROCESS



Soil Washing SITE Demonstration

MINI-WASHER OPERATING CONDITIONS

• Soil feed rate	50 - 100 lb/hr
• Wash water rate	1 - 2 gal/hr
• Expected separation based on known soil size distribution	80% - 20% clean - contaminated
• Transported on two 40' trailers	
• 2 technicians, 1 supervisor required	

Soil Washing SITE Demonstration

POTENTIAL PROCESSES FOR INTEGRATED DEMONSTRATIONS

Soil Source

- Air rotary well drill
- Sampling

Sludge Treatment

- Vitrification
- Grout
- Dewatering

Wash Water

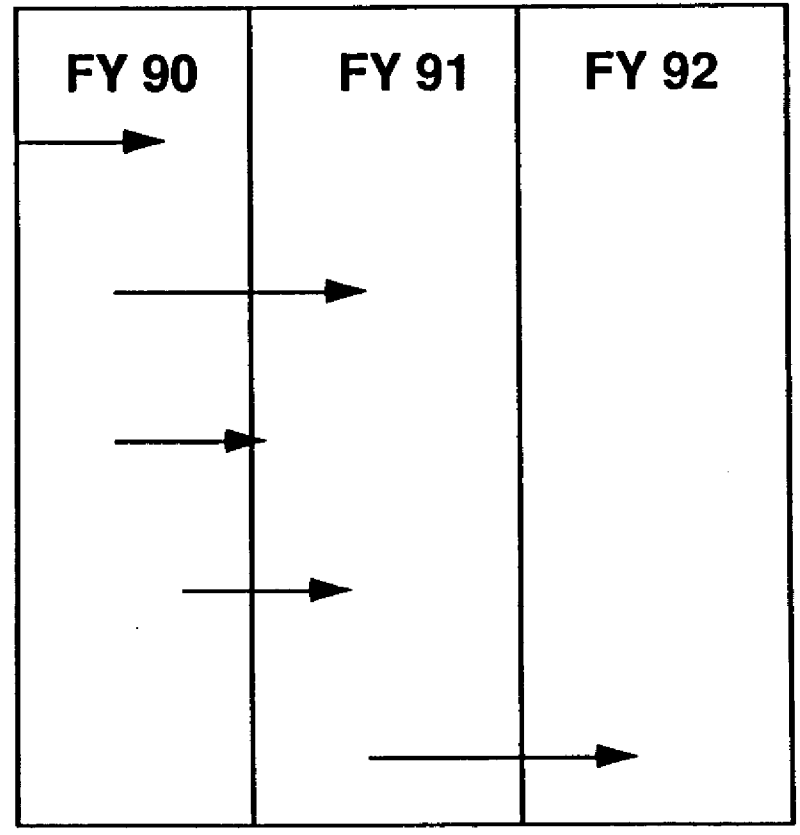
- Purge water (source)
- Biological treatment
- Solvent extraction

Dust/Vapor

- Cover
- Foams
- Water spray

Soil Washing SITE Demonstration

PRELIMINARY SCHEDULE



Soil Washing SITE Demonstration

CONCLUSIONS

- Soil washing is a proven volume reduction step in contaminated soil remediation
- Simple and inexpensive technology that is applicable to radionuclides and heavy metals
- Results should be well accepted by public

Westinghouse Hanford Company

Environmental Technology Group

FY 1990 PERFORMANCE ASSESSMENT ACTIVITIES

January 24, 1990

Jerry W. Cammann

Westinghouse Hanford Company
Richland, Washington

"Making Sure Through Total Quality"

Attachment #8

JAN/UM/1

Outline

- PA Technology Development Program Activities
- PA Applications Program Activities
- Related PA Activities
- General: PA Funding Outlook/Integration
- Suggested Future Special Topic Sessions

PA Technology Development

- **Code Testing/Documentation**
  - PORMC-3
  - PORFLO-3, Version 2.0
  - User's Guide/Technical Manual
  - "Jornada Site" Calibration
- **Evaluation/Documentation of Recharge**
  - Lysimeter Measurements (BWTF, Grass Site, 200E)
  - Isotopic Evaluation (Touchet Bed Silts/Pasco Gravels)
- **Contaminant/Sediment Interactions**
  - Batch-Sorption/Diffusion Half-Cell Tests (Sat/Unsat)
  - Flow-Through Column Tests (Unsat)
  - Retardation/Diffusion Coefficients for Reactive Species
  - Focus on Contaminants of Most Concern (U, Sr, Ru, Tc, I, C, Zr)
  - SST Waste Extracts or Synthetic Solutions with Tracers
  - Touchet Bed Silts/Pasco Gravels

PA Technology Development (cont.)

- **Data Archiving/Data Base Maintenance**
- **RDDT&E Proposals (Performance/Risk Assessment Related)**
  - **RL5010: Development of Geophysical Well Logging Technique**
  - **RL5014: Test Facility for Evaluation of Contaminant Transport**
  - **RL8070: Hanford Site Geohydrologic PA Model**
  - **RL8101: Cumulative Impacts Assessment - Hanford**

PA Applications

- **SST Characterization Well**
  - Address GAO Concern Regarding Water Infiltration
  - Soil Moisture Content/Contamination with Depth
  - Support Code Calibration
- **100 Area Flow/Transport Simulations**
  - Impacts of N-Reactor Shutdown/Reduced Discharges
  - Plume Migration from 1301 LWDF to N-Springs
  - Influence of River Level Fluctuations
  - Moisture Retention (Pressure Plate, Vapor Adsorption, etc.)
  - Hydraulic Conductivity (Unsat Soil Column, Centrifuge, Guelph)
  - Sr Retardation Coefficient (Batch/Flow-Through Column)
  - Support Study for Mitigative Actions, If Required
  - Recommend Changes to Groundwater Monitoring Well Network

PA Applications (cont.)

- **Low-Level Solid Waste Burial Grounds Support**
  - Radiological Performance Assessments (DOE Order 5820.2A)
  - Support Design/Siting of New LLBG's
  - Estimate Remaining Life of Existing LLBG's
  - Determine Cumulative Effects of LLBG Operations
- **RCRA/CERCLA Program Support**
  - 2101M Pond "NOD" Response
  - 1100-EM-1 Baseline Risk Assessment Review
  - 200-BP-1 Implementation Plan (PA Role In Phase I RI)
  - Initiate 200-BP-1 Baseline Risk Assessment ("No Action")

Related PA Activities

- **Physical Property Determination (Nonradioactive Samples)**
  - 1100-EM-1, LLBG's, RCRA Groundwater Wells, 100N Area
  - Hydraulic Conductivity, Particle Size, Moisture Retention
- **Physical Property Laboratory (Radioactive Samples)**
  - 377 Bldg. Being Transferred from PNL to WHC
  - Support Development of Physical Property Test Procedures
  - Current Budgetary Shortfall - Under Program Office Review
- **Long-Term Climate Change Assessment**
  - Protective Barrier Program
  - Identify Bounds on Long-Term Climate Change
  - Independent Peer Review Conducted
  - Study Plan Being Modified
- **Calibration of UNSAT-H Against FLTF Data Base**

General: PA Funding Outlook/Integration

- **Funding Outlook**
  - PA Technology Development Activities Funded Through OTD
  - Funding Provided Through Second Quarter of FY 1990
  - Team Going Back to DOE-HQ to Prioritize Work Nationally
  - Good Chance of Receiving Entire FY 1990 Budget Allocation
  - Out-Year Funding Somewhat Uncertain

  - PA Applications Funded Through Operations Programs
  - Expected to Continue

- **PA Integration Activities**
  - Finalizing Responses to Third-Party Peer Review Comments
  - Enhance Coordination with "MA & PA" Integration Team
  - Form a Hanford Site-Wide PA Overview Committee
  - Revise PA Technology Development Plan to Provide More of an Operational Focus

Suggested Future Special Topic Sessions

- **Site-Wide Groundwater Monitoring/Modeling Efforts**
  - **Presented by PNL's Geosciences Department**
  - **March/April Unit Manager's Meeting**
- **Hanford Protective Barrier and Warning Marker System Development Program**

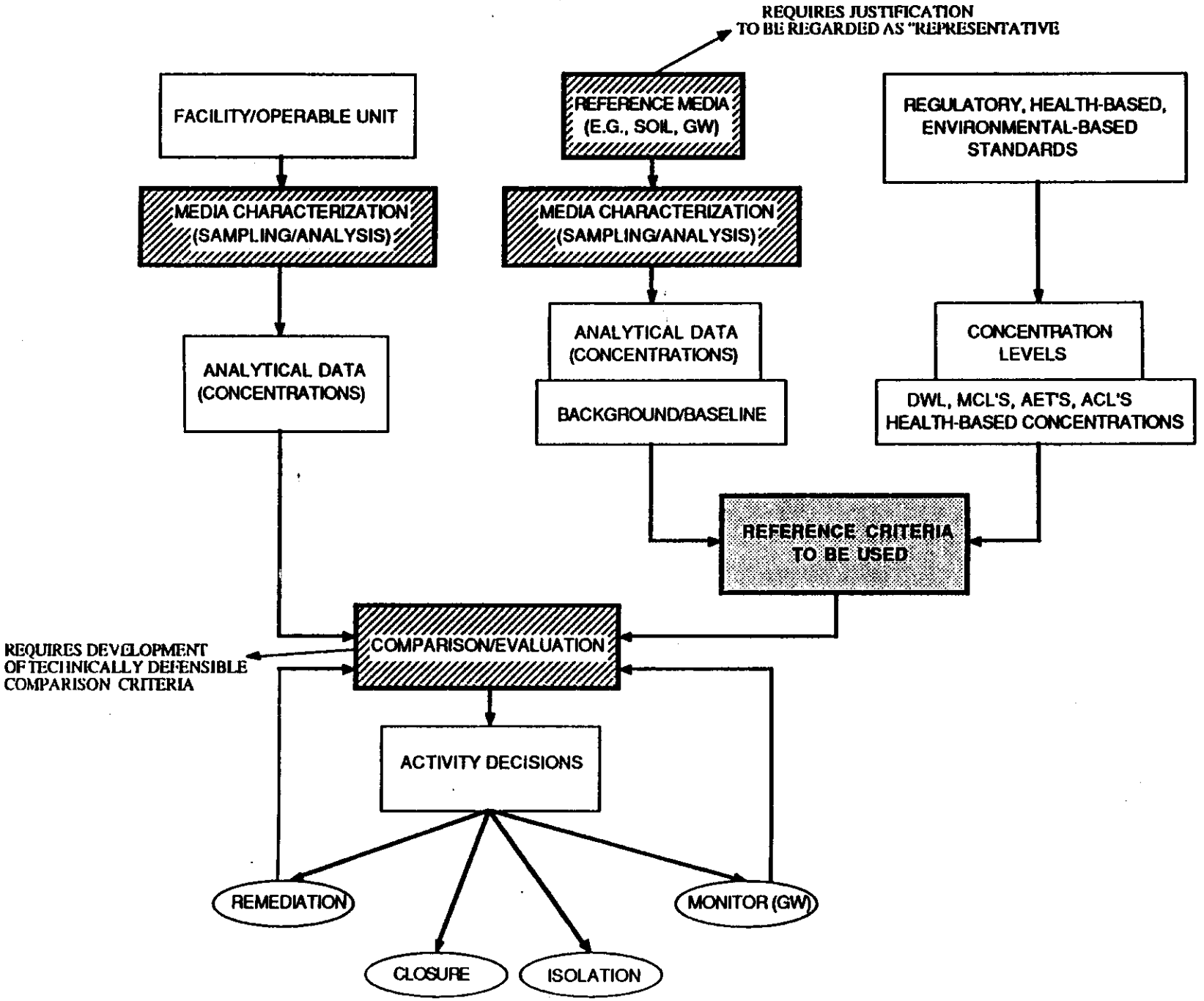
Attachment #9

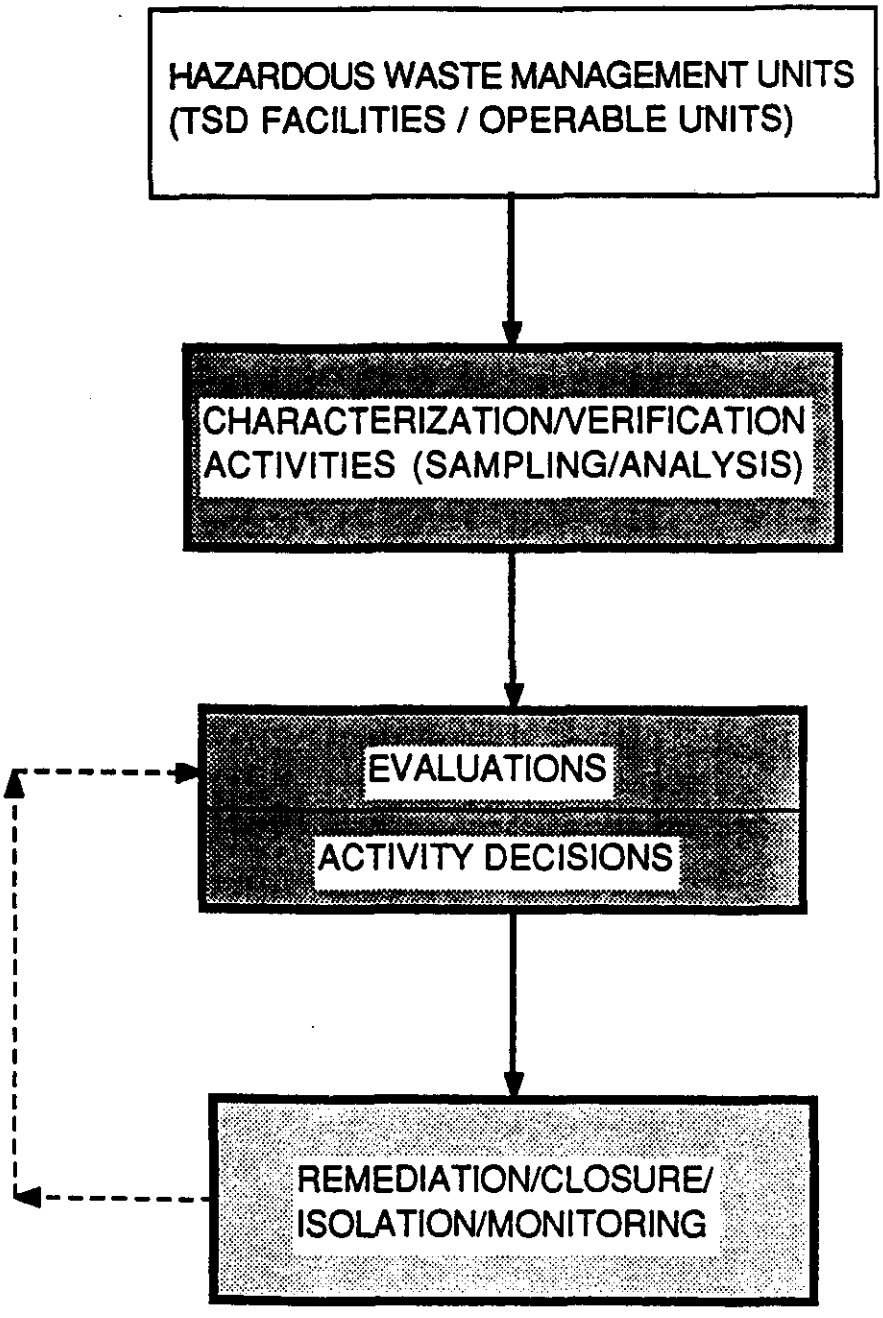
SOILS/GROUNDWATER BACKGROUND ISSUES UPDATE

- **PERSPECTIVE**
- **OBJECTIVES**
- **PLAN OF ACTION**
- **STATUS/ SUMMARY**

PERSPECTIVE

HOW ARE WASTE MANAGEMENT ACTIVITIES IMPACTED BY "BACKGROUND" RELATED ISSUES?


REQUIRES JUSTIFICATION
TO BE REGARDED AS "REPRESENTATIVE
FACILITY/OPERABLE UNIT
REFERENCE MEDIA
(E.G., SOIL, GW)
REGULATORY, HEALTH-BASED,
ENVIRONMENTAL-BASED
STANDARDS
MEDIA CHARACTERIZATION
(SAMPLING/ANALYSIS)
MEDIA CHARACTERIZATION
(SAMPLING/ANALYSIS)
ANALYTICAL DATA
(CONCENTRATIONS)
ANALYTICAL DATA
(CONCENTRATIONS)
CONCENTRATION
LEVELS
BACKGROUND/BASELINE
DWL, MCL'S, AET'S, ACL'S
HEALTH-BASED CONCENTRATIONS
REFERENCE CRITERIA
TO BE USED
REQUIRES DEVELOPMENT
OF TECHNICALLY DEFENSIBLE
COMPARISON CRITERIA
COMPARISON/EVALUATION
ACTIVITY DECISIONS
REMEDIATION
MONITOR (GW)
CLOSURE
ISOLATION


HAZARDOUS WASTE MANAGEMENT UNITS
(TSD FACILITIES / OPERABLE UNITS)
CHARACTERIZATION/VERIFICATION
ACTIVITIES (SAMPLING/ANALYSIS)
EVALUATIONS
ACTIVITY DECISIONS
REMEDIATION/CLOSURE/
ISOLATION/MONITORING

OBJECTIVES

- Change from ad hoc to a more unified approach for resolution of "Background" issues

- Development of Site wide approach to "Background" related issues that are common for RCRA and CERCLA use where possible

PLAN OF ACTION

- IDENTIFICATION OF ISSUES
- ISSUE PRIORITIZATION
- STRATEGY DEVELOPMENT FOR ISSUE RESOLUTION AND IMPLEMENTATION
- PURSUE PRIORITY ISSUES CONCURRENTLY WITH PREPARATION OF STRATEGY DOCUMENT

ISSUE CATEGORIES

- Application of various reference criteria
- Justification of background sites and compositions (Site Data)
- Technical basis for comparison criteria
- Media other than soil and groundwater
- Interim measures

I. APPLICATION OF VARIOUS REFERENCE CRITERIA

- **Definition of terms: (background, baseline, action levels, ACL, MCL's, water quality standards, health-based standards, environmental-based standards, contamination)**

- **Basis for use of these various reference standards in RCRA/CERCLA activities**

II. JUSTIFICATION OF BACKGROUND SITES AND COMPOSITIONS: SITE DATA

- Geohydrologic framework

  -Geology/provenance
    stratigraphy
    structure
    lithologies
    mineralogy
    facies (type, dimensions, extent)

  -Hydrologic/Hydrochemical Framework
    vadose zone
    saturated zone
    unconfined aquifer
    unconfined aquifer
    groundwater recharge sources
    contamination transport

- Physical and Chemical Compositional Data

-Soil: mineralogy, grain size, chemical composition (bulk and partial leachate), porosity, hydraulic conductivity, etc.)

-Groundwater: chemcial composition, pH, Eh, etc.

III. TECHNICAL BASIS FOR USE OF COMPARISON CRITERIA

- **USE OF BACKGROUND AND HEALTH-BASED, ENVIRONMENTAL BASED STANDARDS**

IV. CONTROL MEDIA OTHER THAN SOIL AND GROUNDWATER

Sampling, analysis, comparison criteria;

- **Concrete: (cores, chips, wipe samples)**
- **Metal Surfaces:**
- **Biota**
- **Air**

V. INTERIM MEASURES

- Use of "background" vs other reference standards in RCRA & CERCLA
- Representativeness of soil and groundwater as background or baseline
- Numbers of background or baseline samples required
- Identification of contamination, clean-up levels, etc. (e.g., methods, criteria, etc.)

TASK TEAMS

I.

- STRATEGY DOCUMENT
- APPLICATION OF VARIOUS REFERENCE CRITERIA
- MEDIA OTHER THAN SOIL AND GROUNDWATER
- INTERIM MEASURES

II. TECHNICAL BASIS FOR COMPARISION CRITERIA

III.

- SITE DATA REVIEW AND COMPILATION; GROUNDWATER
- SITE DATA REVIEW AND COMPILATION; SOILS

STRATEGY DOCUMENT OUTLINE

1. INTRODUCTION

2. OBJECTIVES (PLAN OF ACTION)

3. SITE WIDE APPROACH FOR USE OF VARIOUS REFERENCE CRITERIA

4. TECHNICAL BASIS FOR COMPARISON CRITERIA

5. SITE INFORMATION COMPILATION/SUMMARY

6. MEDIA OTHER THAN SOIL AND GROUNDWATER

7. PRIORITIZATION

8. IDENTIFICATION/PRIORITIZATION OF OTHER INFORMATION NEEDS

9. INTERIM MEASURES

10. SCHEDULES AND MILESTONES

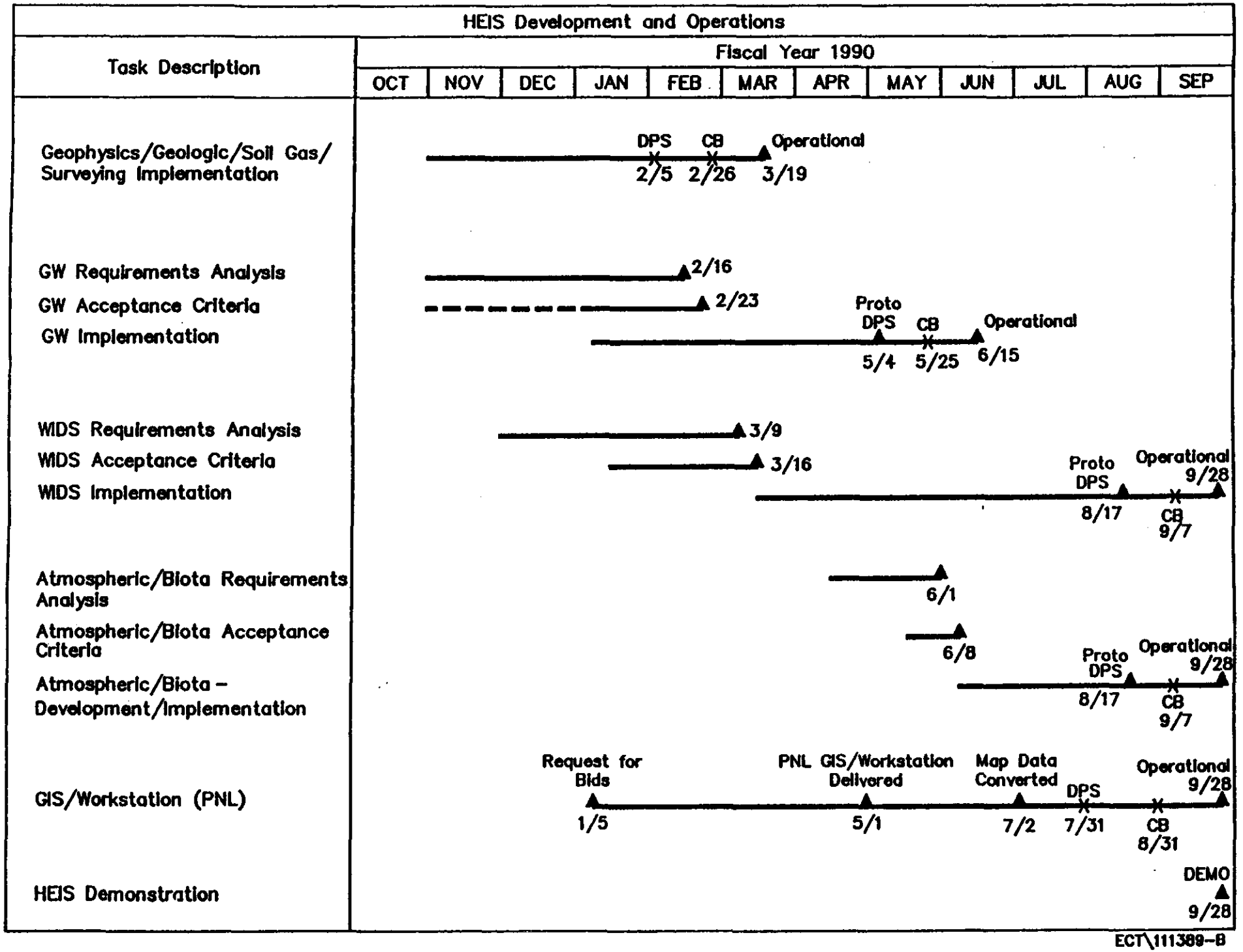
SUMMARY/STATUS

- IDENTIFICATION OF "BACKGROUND" RELATED ISSUES
- ISSUE ORGANIZATION
- PRIORITIZATION OF ISSUES
- STRATEGY DOCUMENT OUTLINE/COMPLETION SCHEDULE
- TASK TEAM ORGANIZATION
- TASK TEAM AGENDAS/SCHEDULES

Attachment #10

HEIS DEVELOPMENT FOR FY90

- Finalize the Geologic/Geophysics/Soil Gas Area Developed in FY89.
- Develop Technical Areas in FY90:
  - Groundwater
  - WIDS
  - Atmospheric/Biota
- Procurement and Installation of a GIS
- Preparation of HEIS Procedures
  - Access and Security
  - Specific Technical Areas and GIS


HEIS Development and Operations
Task Description
Fiscal Year 1990
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
Geophysics/Geologic/Soil Gas/ Surveying Implementation
DPS
2/5
CB
2/26
Operational
3/19
GW Requirements Analysis
2/16
GW Acceptance Criteria
2/23
GW Implementation
Proto DPS
5/4
CB
5/25
Operational
6/15
WIDS Requirements Analysis
3/9
WIDS Acceptance Criteria
3/16
WIDS Implementation
Proto DPS
8/17
Operational
9/28
CB
9/7
Atmospheric/Biota Requirements Analysis
6/1
Atmospheric/Biota Acceptance Criteria
6/8
Atmospheric/Biota – Development/Implementation
Proto DPS
8/17
Operational
9/28
CB
9/7
GIS/Workstation (PNL)
Request for Bids
1/5
PNL GIS/Workstation Delivered
5/1
Map Data Converted
7/2
DPS
7/31
Operational
9/28
CB
8/31
HEIS Demonstration
DEMO
9/28
ECT\111389-8

HEIS OPERATIONAL CONSIDERATIONS

- Technical Aspects on Schedule:
  - Need to Finalize Requirements/Acceptance Criteria for the Groundwater, WIDS, and Atmospheric/Biota Areas.
- Roles of WHC, PNL and IRM as the System Becomes Operational.
- Identify Problems That May Effect Current Funding Levels:
  - Current Funding Intended for Development Purposes.
  - Operational Aspects May Require Additional Funding